

**From:** [Saric, James](#)  
**To:** [Jeff.Keiser@CH2M.com](mailto:Jeff.Keiser@CH2M.com); [Patricia.White@CH2M.com](mailto:Patricia.White@CH2M.com); [Frank.Dillon@CH2M.com](mailto:Frank.Dillon@CH2M.com)  
**Cc:** [Bucholtz, Paul \(DEQ\)](#)  
**Subject:** FW: Proposed RAO-1 language  
**Date:** Monday, November 18, 2013 9:50:00 AM  
**Attachments:** [2013 11 15 A1 FS draft RAO 1.docx](#)

---

Jeff, Patty and Frank,

Lets talk about this on today's call.

Paul,

Can you, me and Jeff talk about this tomorrow.

My initial reaction to this is to have the last bullet in RAO 1 read as follows simply deleting the "as soon as possible". I don't see what advantages any of the other changes provide us. Let me know everyone's thoughts. I would prefer to not have to spend a lot of time at the 11/21 meeting discussing this.

- *The fish tissue goal for bass will be achieved by reducing sediment PCB SWAC in each of eight segments of the river in Area 1 to 0.33 ppm or less to following completion of the remedial action.*

---

**From:** Fortenberry, Chase [mailto:[LCFORTEN@GAPAC.com](mailto:LCFORTEN@GAPAC.com)]  
**Sent:** Monday, November 18, 2013 7:27 AM  
**To:** Saric, James  
**Cc:** Draper, Cynthia E  
**Subject:** Proposed RAO-1 language

Jim,

Attached is the suggested change to the RAO-1 language eliminating "as soon as possible" and rephrasing "following completion of the remedial action".

In addition we have included some suggested edits for your consideration. Please call me if you would like to discuss prior to Thursday.

Thanks,

***L. Chase Fortenberry, P.G.***

**Manager - Environmental Engineering**  
**Georgia-Pacific LLC**  
**133 Peachtree St., NE**  
**Atlanta, GA 30303**  
**Office #: (404) 652-6166**

**Mobile #: (404) 539-3509**  
**[lcforten@gapac.com](mailto:lcforten@gapac.com)**

**Suggested edits to RAO 1 version as provided by EPA/MDEQ:**

***RAO 1: Protect people who consume Kalamazoo River fish taken from Area 1 from exposure to PCBs that exceed protective levels.*** The RAO is expected to be progressively achieved over time by meeting the following targets for fish tissue and sediment:

- Reduction in the Michigan fish advisory level for smallmouth bass to two meals per month (0.11 mg/kg) total PCB concentration in fish tissue within 30 years
- Achievement of a non-cancer HI of 1.0 and a  $10^{-5}$  cancer risk within 30 years for the high-end sport angler (100 percent bass diet)
- The fish tissue goal for bass will be achieved by reducing sediment PCB SWAC in each of eight segments of the river in Area 1 to 0.33 ppm or less [to support meeting the fish tissue goals and time frame listed above.](#)  
~~as soon as possible following completion of the remedial action.~~

In addition to the above, AMEC and GP would like an opportunity to discuss revising the third bullet so that it allows for future flexibility in long term sampling and evaluation of the data. Specific revisions to consider are listed below.

1. Remove the term “SWAC” from the RAO to allow EPA and GP flexibility in the future as to the specific method of evaluating PCB concentrations in sediment. For example, a simple average may be appropriate sometime in the future rather than recalculating stream tubes and SWACs for each evaluation. It is also possible that a method, other than SWACs, would be developed in the future and would be more appropriate.
2. Remove specific reference to number of sections (8) because this will allow flexibility in the future to sample based on where fish typically are found and where remediation occurred. Currently the section boundaries are somewhat arbitrary and don't match with the ABSAs divisions used for evaluating fish. Suggested replacement text would read “Sediment goal of 0.33 mg/kg: The fish tissue goal for bass will be achieved by reducing PCBs in sediment in the Area 1 river sections to 0.33 ppm or less to support meeting the fish tissue goals and time frame listed above.”

We have a few phrasing suggestions as well. The phrase, “Reduction in the Michigan fish advisory level for smallmouth bass” in bullet one could be misinterpreted to mean that we plan to reduce the advisory and not the fish tissue. To clarify, the following change to the first bullet is suggested.

- ~~Reduction in~~ The Michigan fish advisory level for smallmouth bass to two meals per month (0.11 mg/kg) total PCB concentration in fish tissue within 30 years

The following revision is suggested to add the PCB concentration goal associated with an HI of 1 and the  $10^{-5}$  risk.

- ~~Achievement of a Non-cancer HI of 1.0~~ (0.072 mg/kg) and a  $10^{-5}$  cancer risk (0.042 mg/kg) for total PCBs within 30 years for the high-end sport angler (100 percent bass diet)